VARIATION OF SPECIFIC GRAVITY WITHIN *Eucalyptus grandis* TREES GROWING IN DIFFERENT SITE CLASSES.

N.D. Ruwanpathirana[1], H.S. Amarasekara[2] & M.P. De Silva[3]
[1] State Timber Corporation, Sampathpaya, Battaramulla
[2] Department of Forestry & Environmental Science,
University of Sri Jayewardenepura
[3]Faculty of Science, University of Ruhuna

Wood is a very remarkable material with variability and flexibility. The variability of wood increases its utility. It may be also a major drawback to its efficient use as raw material. Therefore understanding of pattern of wood properties within the tree has become important. In addition, growth rate and its effect on wood properties are of practical importance to maximize wood and fiber production. In this study, variations of specific gravity within the trees of 30-years old *Eucalyptus grandis* extracted from Pattipola, Santhipura and Piduruthalagala in Nuwara-Eliya districts were studied. Data were collected in relation to site class (growth rate) as determined by tree height. The objective of the study was to find out whether specific gravity is affected by growth rate of tree. Specific gravity values were collected in a systematic manner, which are essential in commercial utilization of this species. Three sites, namely Slow Growth Site (SGS), Medium Growth Site (MGS) Fast Growth Site (FGS) were chosen. Five trees from each site were taken for the investigation. Tree height difference between SGS (33.8 meters) FGS (45 meters) was significantly different ($P \leq 0.05$) but not between SGS and MGS (38.7 meters).

Variation patterns of specific gravity in racial direction were studied using two linear sections extracted across the diameter of every sample disc, from north to south and east to west at different height levels at breast height and at 20%, 40%, 60% and 80% of total tree height. 3021 wood samples of 2*2*1 cm dimensions were used for specific gravity determination.

In general, low specific gravity values were observed at pith in all three sites. In fast growth site, specific gravity increased from pith; thereafter it remained constant towards the bark with small fluctuation. In slow and medium growth sites, however specific gravity increased gradually towards the bark. Fast growth site maintained the highest specific gravity values throughout piths to bark. The specific gravity of SGS and MGS increased rapidly with increasing distance from pith.

In general, specific gravity increased with tree height in all sites except at 20% height level in SGS and MGS. Mean specific gravity values in SGS at breast height, 20%, 40%, 60% and 80% height levels were 0.432, 0.431, 0.433, 0.468 and 0.475 respectively. Specific gravity values for these levels in MGS were 0.441, 0.435, 0.467, 0.477,0.542 and Specific gravity values were 0.479, 0.482, 0.493, 0.525, 0.553 for FGS respectively.